



TRMM Flight Operations Monthly Status Review (MSR)

September 26, 2001



FOT Subsystem Overview

- Operations Status
 - Flight Ops Summary - Andy Calloway for Lou Kurzmiller
 - Electrical - Andy Calloway
 - Thermal - Dave Sepan
 - RCS & RF / Comm. - Dave Sepan
 - ACS & FDS / C&DH - Mark Fioravanti
 - Power & Deployables - Justin Knavel
 - LIS - Justin Knavel
 - CERES & VIRS - Mark Fioravanti
 - TMI - Dave Sepan
 - PR - Andy Calloway
 - Ground System - Andy Calloway
 - Upcoming Activities - Andy Calloway



Flight Operations Summary

- Supported 482 SN events in September
 - 1 Yaw Maneuver; now +X
 - 7 Delta-V Maneuvers
- 2 Event Rpts, 2 Generic Late Acqs, No Anomaly Rpts
 - ER #246: WSC; Multiple Seq Errors, Degraded I&Q Chnls
 - ER #247: WSC; Overheating Problem, Fwd Link Failover
 - TDRS EPV's (TDE & 171) failed on initial uplink attempt



Flight Operations Summary

- Notable Events
 - PSIB-A H/K packet downlink rate changed to once per minute for 1/4 Kbps events
 - Contingency Mode DSS Residual Tolerance Table 51 Updated
- FOT at full staff; no apparent problems



Thermal / Electrical Subsystems

- The Thermal subsystem remains nominal
 - No operational issues since arrival at 402.5 km

- The Electrical subsystem remains nominal
 - No operational issues since arrival at 402.5 km



RCS Subsystem

- RCS performed 7 successful Delta-V maneuvers (#332 - #337)
 - Current fuel remaining is 343 kg
 - Current High Pressure Transducer level is 365.6 psia.
- The current EOL estimate at 402.5 km is June 2004 using 157 kg of fuel as a baseline for controlled re-entry.
 - Solar Flux levels are currently very high.
- Upcoming Events
 - Continue to review and train with Delta-H procedure, EOL scripts, and the “one-shot” procedure.
 - Review all required steps for a 30+ minute Delta-V maneuver and test with the simulator.



RF Subsystem

- 2 Generic Late Acquisitions
 - 246/032700z 171 event: Locked up @ 032830z. One fwd reacq was sent. Dump/pb were performed. All data recovered.
 - 267/020200z 171 event: Locked up @ 020335z. One fwd reacq was sent. Dump/pb were performed. All data recovered.
- 2 RF Event Reports and 1 MOCR this month
 - ER # 246: Multiple sequence errors were experienced during the TDS/0007z event on day 245. CSC reported equipment problems at WSC. All data was recovered.
 - ER # 247: Two dropouts occurred on the forward link during the TDS/1034z event on day 262. CSC reported an overheating problem which caused a forward link failover. No data was lost.



RF Subsystem

- Frequency offsets (monthly average)
 - Transponder #1 = +707.873 Hz
 - Transponder #2 = -697.761 Hz
- Upcoming Events
 - Offset of transponder 2 frequency may still occur this year.



ACS Subsystem

- ACS performing nominally.
 - Using Kalman filter for Attitude control.
 - Successful operation for performing Yaw Maneuvers and Delta-V maneuvers.
 - Uplinked revised version of ACS System table #51 with tightened DSS residuals.
 - Final calibration and determination of the actual pointing accuracy is being performed by FDF analysts with the support of GN&C and PR data.



FDS/C&DH Subsystems

- TO Status;
 - Event Dump messages were being received, but PSIB-A packet was increased so the playback of flight messages during 1/4k events are no longer being received
 - During the next week the ACS contingency packet rate will be reduced to once every 90 seconds, to allow for additional bandwidth for the event message dumps during 1/4k events.
- UTCF/FS Status;
 - No Adjustments were performed. The next on is expected on 01-268 (Tues., Sept 25th)
 - Current UTCF value is 31535996.818135 sec
 - No FS Adjustments were performed, and the current value is x'7D2'. The next Adjustment is expected on 01-315 (Sun., Nov 11th), and will be adjusted to x'7DE'.



FDS/C&DH Subsystems

- Planned RTS Changes
 - Nominal TDRS AOS RTS format changes to allow easier modification as DS storage status changes, and to simplify transponder offsets if required.
 - Initially will be performed with RTSs 65 - 68, other AOS RTSs may also be converted later.



Power Subsystem

- Open issues
 - Essential Bus Voltage Monitor Backup (S/C Processor Current)
 - Solar Array off-pointing
 - » Test Delta V and Yaw maneuvers with simulator
 - » Create RTSs for Yaw maneuvers
 - » Longer duration on-board test



Deployables Subsystem

- Solar array drives and HGA continue to operate nominally.



LIS Instrument

- One Routine MSFC real-time command request was performed on 01-253 (September 10th) to reduce packet sequence errors.
- No open issues



CERES/VIRS Instruments

- **CERES.**
 - Powered OFF.
- **VIRS**, continues to operate nominally.
 - Two sets of VIRS Solar Calibrations were performed on 01-258 (Sat., Sept 15th).



TMI / PR Instruments

- No Open Issues with the TMI or PR instruments
 - PR LNA Analysis was conducted on September 5 (01-248)



Ground System

- MOPSS rollover problem emergency patch worked as advertised
- Centerwide phone outage was complete by September 3rd
- 3rd Quarter GITT Security Scan performed on all three strings
- Meeting held with RXTE, TSMs and developers to finalize procedure for supporting both RXTE and TRMM in the SOTA-7 facility simultaneously
- FOT is currently reviewing information for a possible upgrade to the mission's trending and analysis system



Upcoming Activities

- 0-2 Months
 - Perform remaining FSW revisions due to new Kalman Filter mode of operations
 - » 2000 Epoch Magnetic Field Patch
 - » TAM/MTB Contamination Matrix update
 - » Table 54 Update for Roll/Pitch/Yaw to 15°/8°/8°
 - Place all permanent table changes into EEPROM
 - Support Leonids Storm contingency and safety activities
 - Perform SA 55° offset long-duration test
 - Test and install new TDRS HGA AOS RTSs



Upcoming Activities

- 2-3 Months
 - Complete testing and training with PSIB alternate telemetry patch
 - End Of Life Planning, Testing, and Simulations continue
 - Continue to close open CCRs, MOCRs, and MSR Action Items